

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IFW

In re Yasushi HIGUCHI et al.

Application No.: 10/579,772

Filed: May 18, 2006

Confirmation No. Not Yet Assigned



Attorney Docket No.: 7378/88140

Customer No.: 42798

For: PROCESS FOR PRODUCING OPTICALLY ACTIVE 2-ALKYLCYSTEINE,
DERIVATIVE THEREOF, AND PROCESSES FOR PRODUCTION

**SUBMISSION OF ENGLISH TRANSLATION OF THE
INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT/IB/373) AND
WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT/ISA/237)**

Commissioner for Patents
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

Applicants submit herewith a copy of the English Translation of the International Preliminary Report on Patentability (PCT/IB/373) and the English Translation of the Written Opinion of the International Searching Authority (PCT/ISA/237) filed in the related international application for the above-captioned application.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

A handwritten signature in black ink, appearing to read "Kendrew H. Colton".

Kendrew H. Colton
Registration No. 30,368

Date: September 19, 2006

*OFFICIAL CORRESPONDENCE TO
Customer No. 42798*

FITCH, EVEN, TABIN & FLANNERY
1801 K Street, NW, Suite 401L
Washington, DC 20006-1201
Tel: 202/419-7000
Fax: 202/419-7007

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference IFP-694	FOR FURTHER ACTION	See item 4 below
International application No. PCT/JP2004/017140	International filing date (<i>day/month/year</i>) 18 November 2004 (18.11.2004)	Priority date (<i>day/month/year</i>) 18 November 2003 (18.11.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant MITSUBISHI GAS CHEMICAL COMPANY, INC.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	<p>This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
<input checked="" type="checkbox"/>	Box No. I	Basis of the report																							
<input type="checkbox"/>	Box No. II	Priority																							
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability																							
<input type="checkbox"/>	Box No. IV	Lack of unity of invention																							
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																							
<input type="checkbox"/>	Box No. VI	Certain documents cited																							
<input type="checkbox"/>	Box No. VII	Certain defects in the international application																							
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Date of issuance of this report 24 July 2006 (24.07.2006)</td> </tr> <tr> <td style="padding: 2px;"> Authorized officer <div style="text-align: center; font-weight: bold;">Yoshiko Kuwahara</div> </td> </tr> <tr> <td style="padding: 2px;">e-mail: pt07@wipo.int</td> </tr> </table>	Date of issuance of this report 24 July 2006 (24.07.2006)	Authorized officer <div style="text-align: center; font-weight: bold;">Yoshiko Kuwahara</div>	e-mail: pt07@wipo.int
Date of issuance of this report 24 July 2006 (24.07.2006)				
Authorized officer <div style="text-align: center; font-weight: bold;">Yoshiko Kuwahara</div>				
e-mail: pt07@wipo.int				

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference.

IFP-694

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/017140

International filing date (day/month/year)

18.11.2004

Priority date (day/month/year)

18.11.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

MITSUBISHI GAS CHEMICAL COMPANY, INC.

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/017140

Box No. 1

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/017140

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>1-12</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims _____	YES
	Claims <u>1-12</u>	NO
Industrial applicability (IA)	Claims <u>1-12</u>	YES
	Claims _____	NO

2. Citations and explanations:

Document 1: Tetrahedron, 1993, 49(10), pages 2131-2138
 Document 2: Bulletin of the Chemical Society of Japan, 1989, 62(1), pages 109-113
 Document 3: JP, 2000-309572, A (Consortium fur Electrochemische Industry), 7 November, 2000 (07.11.00), pages 3-5, & EP, 1059288, A1, & US, 6372912, B1
 Document 4: JP, 2002-315597, A (Mitsubishi Gas Chemical Co., Inc.), 29 October, 2002 (29.10.02), pages 2-4 (Family: none)
 Document 5: JP, 2002-34593, A (Mitsubishi Gas Chemical Co., Inc.), 5 February, 2002 (05.02.02), pages 2-4 (Family: none)

Claims 1-2 and 4-8

The subject matters of claims 1-2 and 4-8 do not appear to involve an inventive step in view of documents 1-5 cited in the ISR.

Documents 1-3 describe a method for (1) allowing a cysteine to react with a carbonyl compound to produce a thiazolidine compound, and (2) after this thiazolidine compound has been separated, producing an optically active cysteine by carrying out ring opening reaction. Furthermore, since documents 4-5 describe a method for producing an optically active D- or L- α -amino acid by a biochemical hydrolysis of D, L- α -amino acid amide, a person skilled in the art could have easily conceived of a method for producing an optically active 2-alkylcysteine from a 2-alkylcysteinamide by combining this method with the method of documents 1-3.

Claims 3 and 9-12

The subject matters of claims 3 and 9-12 do not appear to involve an inventive step in view of documents 1-3 cited in the ISR.

Documents 1-3 describe a method for allowing a cysteine to react with a carbonyl compound to produce a thiazolidine compound. So, a person skilled in the art could have easily conceived of a 4-alkylthiazolidine-4-carboxylic acid and a method thereof in the same manner.

RECEIVED

AUG. 14. 2006

M. IDE & Co.

TOKYO

PCT

NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY
(CHAPTER I OR CHAPTER II
OF THE PATENT COOPERATION TREATY)
(PCT Rules 44bis.3(c) and 72.2)

From the INTERNATIONAL BUREAU

To:

IDE, Masatake
M. IDE & CO.
3-1, Gobancho
Chiyoda-ku
Tokyo, 1020076
JAPON

9F, Gobancho Grand Bldg.

Date of mailing (day/month/year) 03 August 2006 (03.08.2006)	
Applicant's or agent's file reference IFP-694	IMPORTANT NOTIFICATION
International application No. PCT/JP2004/017140	International filing date (day/month/year) 18 November 2004 (18.11.2004)
Applicant MITSUBISHI GAS CHEMICAL COMPANY, INC. et al	

1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Yoshiko Kuwahara

Facsimile No. +41 22 338 82 70

Facsimile No. +41 22 338 82 70